

IN THE CLAIMS

1-16. (Canceled)

17. (New) A storage system comprising:

a disk array including a plurality of disks; and

a controller coupled to the plurality of disks;

wherein:

the controller comprises a SAN controller and a NAS controller coupled to the SAN controller;

the NAS controller includes a NAS processor, which is configured to convert a file I/O command received from a NAS client computer into a block I/O command and transfer the block I/O command to the SAN controller, and a NAS memory for storing a command conversion program executed by the NAS processor to convert the file I/O command in the block I/O command,

the SAN controller includes a SAN processor, which is configured to access data stored in the plurality of disks according to a block I/O command received from a SAN client computer or the block I/O command received from the NAS processor, and a SAN memory for storing a disk-array control program executed by the SAN processor to access data stored in

the plurality of disks according to the block I/O command and a NAS controller management program executed by the SAN processor to control the NAS controller;

wherein:

after the SAN controller is initialized, the disk array is arranged to be initialized by the execution of the disk-array control program and the SAN processor is arranged to transmit a completion notice of the initialization of the disk array to the NAS controller,

after reception of the completion notice of the initialization of the disk array, the NAS controller is arranged to initialize the NAS memory and to transmit a completion notice of the initialization of the NAS memory to the SAN controller,

after reception of the completion notice of the initialization of the NAS memory, the SAN controller is arranged to transmit the command conversion program stored in a disk array to the NAS memory by executing the NAS controller management program and to transmit a completion notice of the program transmission, and

after reception of the completion notice of the program transmission, the NAS controller is arranged to start execution of the command conversion program.

18. (New) A storage system according to claim 17, wherein the NAS controller and the SAN controller are connected via a bus, and the NAS controller is configured to communicate with the SAN controller via the bus.

19. (New) A storage system according to claim 17, wherein the SAN processor is configured to continue the execution of the disk-array control program to access data stored in the plurality of disks according to the block I/O command received from the SAN client computer, when the execution of the command conversion program stops.

20. (New) A storage system according to claim 17, wherein the SAN memory for the SAN controller is arranged to receive the disk-array control program and the NAS control program from the plurality of disks after the initialization of the SAN controller and before initialization of the disk array.

21. (New) A storage system according to claim 17, wherein the SAN controller is arranged to terminate the execution of the command conversion program by giving a notice

from the NAS controller management program to the command conversion program in response to a termination signal, the command conversion program being arranged to store data from a file cache of the NAS controller to a disk cache of the SAN controller in response to the notice prior to the termination of the command conversion program.

22. (New) A storage system according to Claim 17, wherein, when the command conversion program enters a hung-up state due to a failure of the NAS controller, the SAN controller is arranged to terminate the executing of the command conversion program by giving a forcible termination notice from the NAS controller management program to the NAS processor.

23. (New) A method of operating a storage system, having a disk array including a plurality of disks and a controller coupled to the plurality of disks, the method comprising:

initializing a SAN controller of the controller;
initializing a disk array by execution of a disk-array control program stored in a SAN memory of the SAN controller;

transmitting a completion notice of the initialization of the disk array from the SAN controller to a NAS controller of the controller;

initializing a NAS memory of the NAS controller after reception of the completion notice of the initialization of the disk array;

transmitting a completion notice of the initialization of the NAS memory to the SAN controller;

transmitting a command conversion program stored in a disk in the disk array from the SAN controller to the NAS controller to be stored in the NAS controller, after reception of the completion notice of the initialization of the NAS memory by the SAN controller, by executing a NAS controller management program stored in the SAN memory;

transmitting a completion notice of the transmission of the command conversion program;

converting by the NAS processor a file I/O command received from a NAS client computer into a block I/O command using the command conversion program stored in the NAS controller;

transferring the block I/O command to the SAN controller;
and

accessing data stored in the plurality of disks according to the block I/O command, the SAN processor also being arranged to access data stored in the plurality of disks according to a block I/O command received from a SAN client computer.

24. (New) A method according to Claim 23, wherein the NAS controller communicates with the SAN controller via a bus connecting the NAS and SAN controllers.

25. (New) A method according to Claim 23, wherein the SAN processor continues the execution of the disk-array control program to access the data stored in the plurality of disks according to the block I/O command received from the SAN client computer, when the execution of the command conversion program stops.

26. (New) A method according to Claim 23, wherein the SAN memory of the SAN controller receives the disk-array control program and the NAS control program from the plurality of disks after the initialization of the SAN controller and before initialization of the disk array.

27. (New) A method according to Claim 23, wherein the SAN controller terminates the execution of the command conversion program by giving a notice from the NAS controller management program to the command conversion program in response to a termination signal, the command conversion program storing data from a file cache of the NAS controller to a disk cache of the SAN controller in response to the notice prior to the termination of the command conversion program.

28. (New) A method according to Claim 23, wherein, when the command conversion program enters a hung-up state due to a failure of the NAS controller, the SAN controller terminates the execution of the command conversion program by giving a forcible termination notice from the NAS controller management program to the NAS processor.